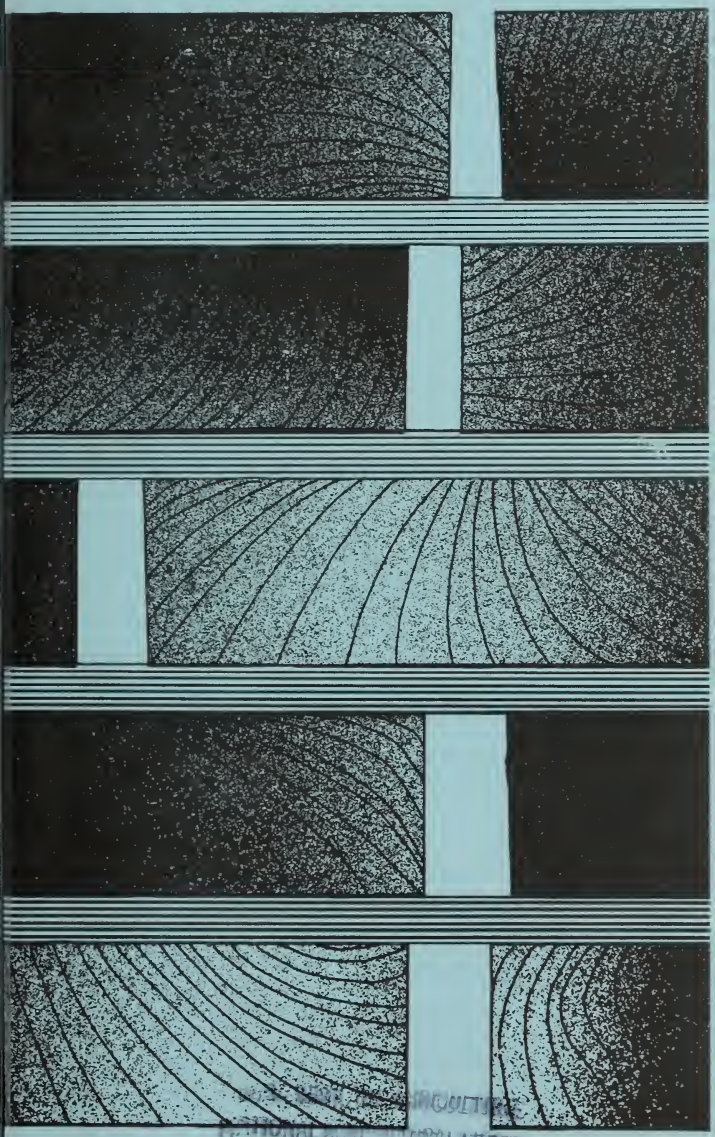
How to dry small quantities of lumber

How to Dry Small Quantities of Lumber



United States
Department of
Agriculture

PREPARED BY
Forest Service

North Central Forest
Experiment Station

Before using freshly sawn hardwood lumber in your woodworking projects, you must dry it. This pamphlet shows you how you can dry short lengths of green boards inexpensively at home. Green lumber up to 2 inches thick can be dried for indoor use in from 1 to 4 months, depending on the species and wood thickness. Moisture contents of the dried lumber range from 8 to 11 percent, depending on the conditions in the indoor room.

WHY MUST I DRY WOOD?

Freshly cut lumber contains almost 1 pound of water for each pound of dry wood. If used in the green condition, the lumber will dry while in use, leading to shrinkage, decay, paint failure, and loosening of joints. The lumber must be dried first to avoid these problems.

Pile foundation and beginnings of the first course of lumber.

Completed pile

HOW CAN I DRY GREEN HARDWOOD LUMBER?

When warm, dry air is moved over the surfaces of green wood, the wood absorbs heat from the air and this heat evaporates the water held in the wood. Stack the wood in rows or tiers separated from each other by a few

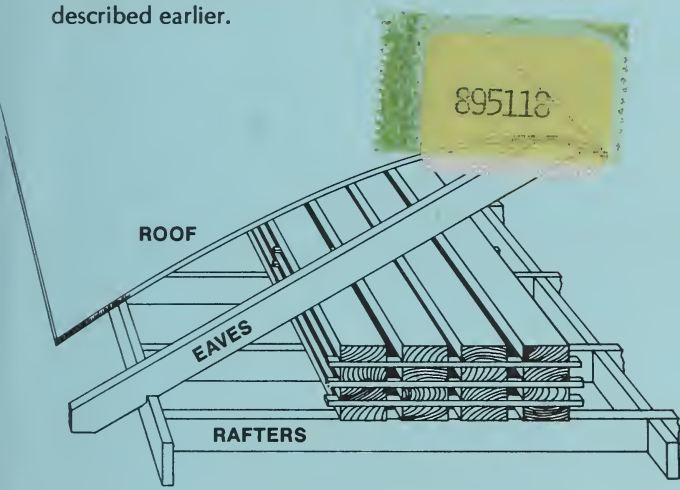
crosslaid pieces of dry lumber about 3/4-inch square (called stickers) and support it well above the ground. Place heavy weights on top of the stack to keep the boards flat. Align the stickers vertically to prevent sagging.

WHERE CAN I BUILD THE STACK?

Build the stack where warm, dry air can move through the tiers. Heated or dehumidified indoor space or an attic above heated space are good locations. However, unheated sheds can be used to accomplish most of the drying. If no shed or indoor space is available to handle all of the lumber, you can build the stack outdoors, but it must be protected with a slightly sloping roof of plywood or other panel-type material.

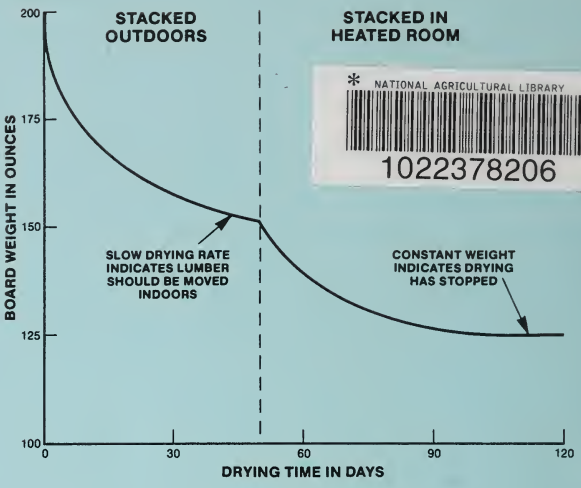
Stacks built outdoors or in unheated sheds will dry well in the warm months but much more slowly in cold winter months.

Outdoor conditions are not dry enough to remove enough moisture from the wood to reach the 6-10 percent moisture contents required for indoor use. Therefore, you will have to move the material in the stack into a heated or dehumidified interior space to complete the drying. The lumber should be stacked indoors in the same manner as described earlier.



HOW WILL I KNOW WHEN THE WOOD IS DRIED?

Weigh a few boards from the stack at least once a week. When their weight stops dropping, the boards have stopped drying. One easy way to keep track of the wood's progress is by graphing the board weight, such as in the graph. The graph shows the weight loss of white oak, originally weighing 200 ounces, which was dried outdoors until the rate of weight loss was very low and then moved to a heated indoor space and dried until no further weight



loss occurred. Although a hard-to-dry species such as white oak took 4 months to dry, easier drying species like yellow-poplar and silver maple can be dried in less than 1 month.

A FEW POINTERS

1. End coat your green logs and green lumber with beeswax or a commercial sealer to prevent excessive end checking.
2. Use light-colored wood for stickers.
3. Keep dried lumber indoors in a dry location until you're ready to make the final product.

Charles M. Miceli
Research Assistant
Department of Forestry
Southern Illinois University
Carbondale, IL

Howard A. Spalt
Associate Professor
Department of Forestry
Southern Illinois University
Carbondale, IL

Howard N. Rosen
Research Chemical Engineer
North Central Forest Experiment Station
Carbondale, IL

Copies available from—

North Central Forest Experiment Station
1992 Folwell Avenue
St. Paul, MN 55108

NA State & Private Forestry
370 Reed Road
Broomall, PA 19008

1982

☆ U.S. Government Printing Office: 1982 - 665-008 HT-56